

# Oklahoma State Pension Commission Retirement System Summary of Actuarial Reports

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# System Characteristics and Assumptions

- Retirement System comprises seven plans (Teachers, OPERS, Firefighters, Police, Law Enforcement, Judges, and Wildlife)
- Based on July 1, 2007 Actuarial Valuation Reports from Actuaries<sup>1</sup> and System Financial Statements
  - All plans employ Entry Age Normal funding method
    - a conservative funding schedule
  - All plans employ similar asset valuation method (smoothed value)
  - Investment return assumptions range from 7.25% to 8.0%
  - Median assumed investment return for Public Funds is 8.0%<sup>2</sup>
  - All plans have in place long term amortization schedules (15 years and longer) to fully fund

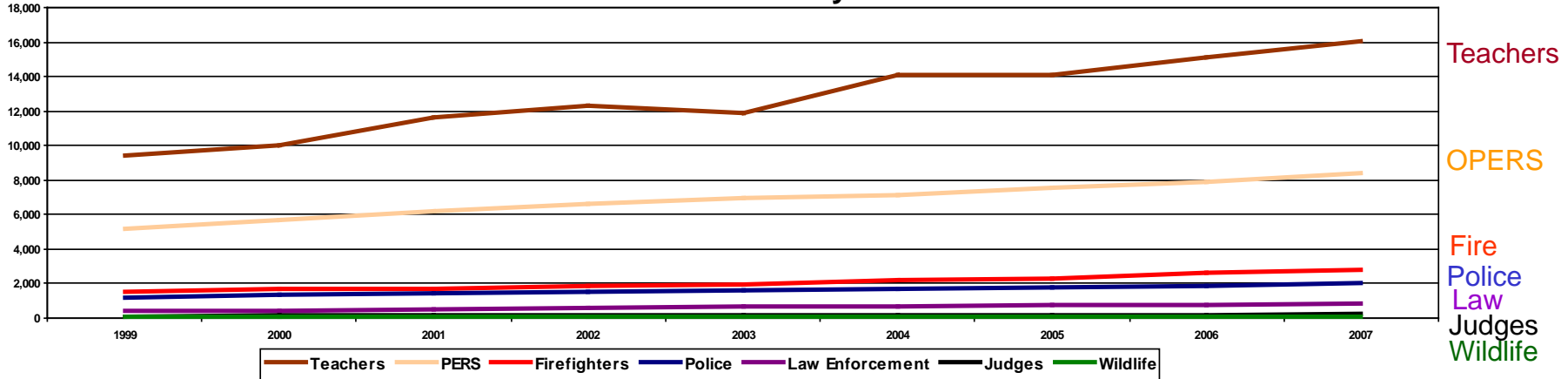
1. Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company

2. Greenwich Associates survey, 2007

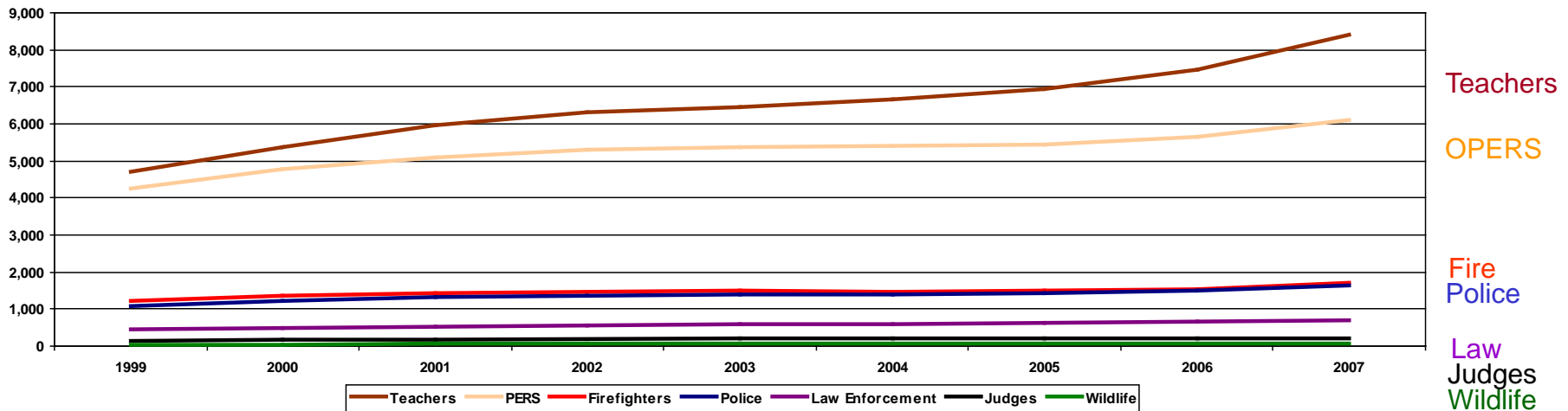


# Liability and Asset History - Actuarial

### Actuarial Liability

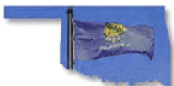


### Actuarial Value of Assets

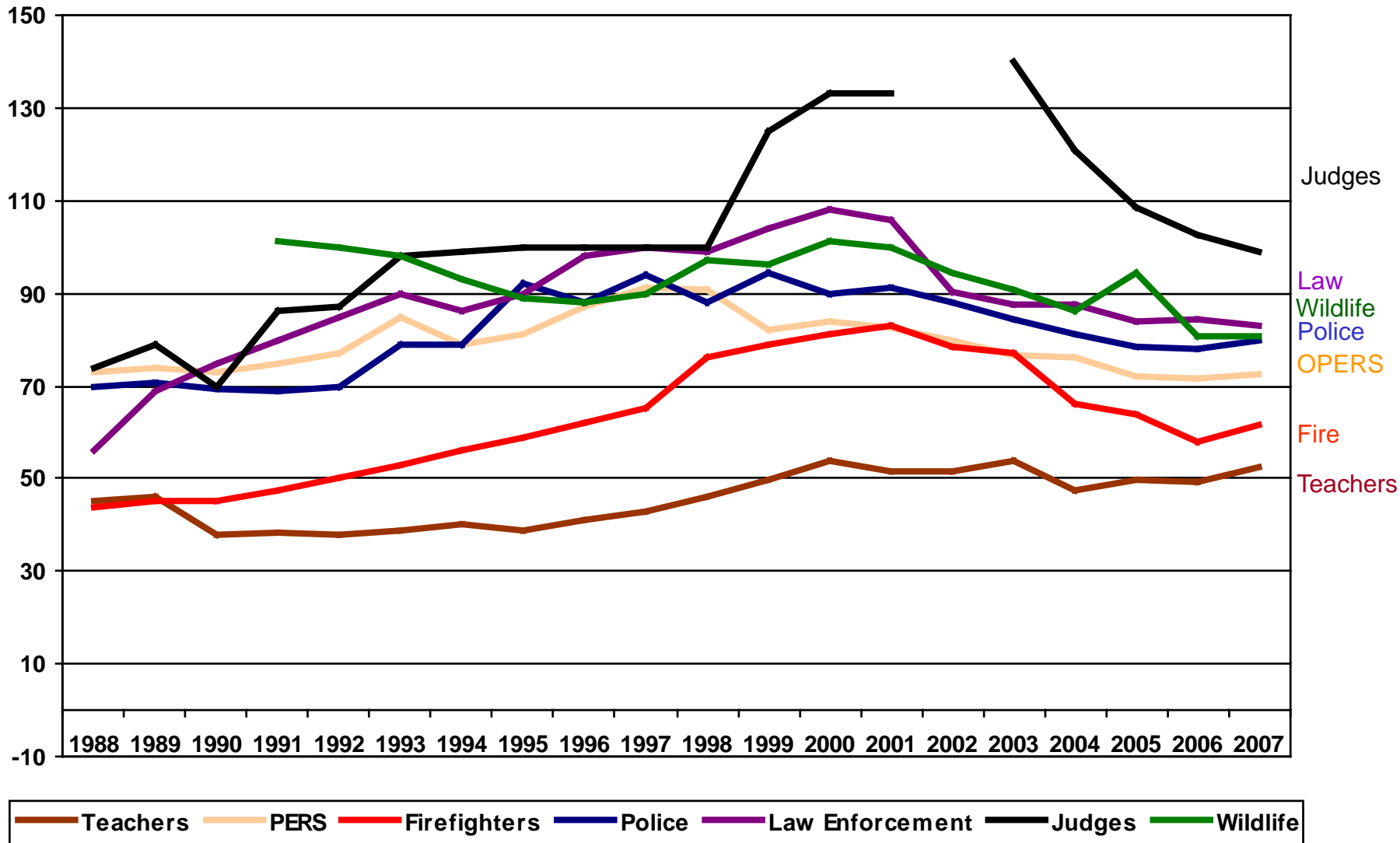


Source: 1999 and earlier: R.V. Kuhns & Associates,  
 2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company



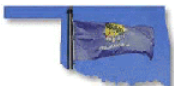


# Funded Status History – Actuarial

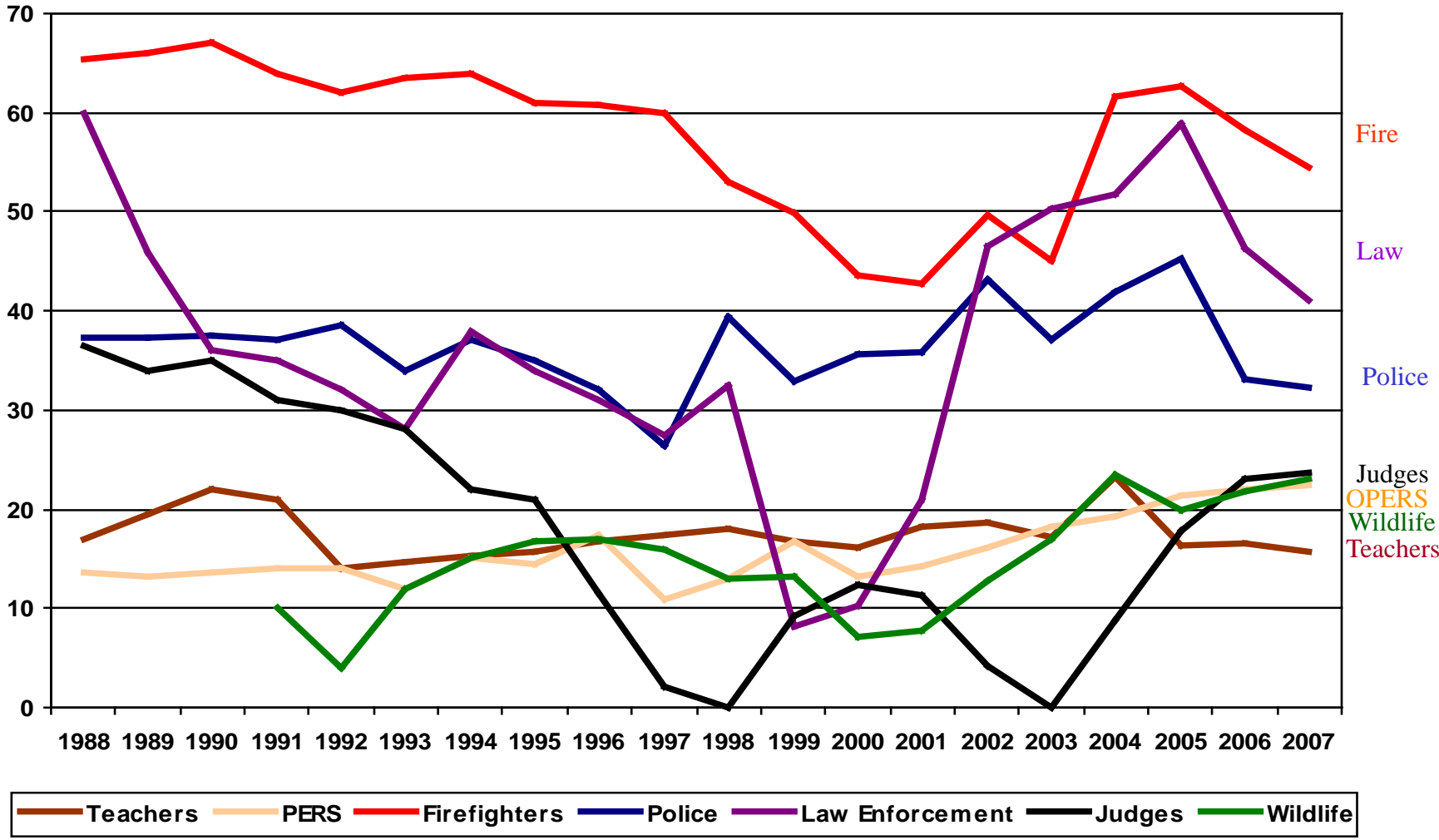


Source: 1999 and earlier: R.V. Kuhns & Associates,  
 2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company





# GASB 25 Total Employer Cost as % of Payroll



Source: 1999 and earlier: R.V. Kuhns & Associates, 2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company





# Employer Contributions

## Required Employer Contribution (assuming GASB 25 funding requirements)

Plan Year Beginning	7/1/1998	7/1/1999	7/1/2000	7/1/2001	7/1/2002	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007
Teachers	\$456.9	\$455.3	\$451.5	\$556.2	\$585.1	\$534.8	\$722.1	\$535.2	\$575.7	\$590.5
OPERS	107.2	161.8	169.6	188.0	232.8	257.0	266.0	310.0	338.6	363.9
Firefighters	57.0	57.0	62.0	63.1	76.5	73.7	106.7	118.3	146.8	147.3
Police	39.8	34.7	53.0	54.9	71.7	63.5	73.8	85.4	95.1	100.5
Law Enforcement	8.7	6.3	4.1	10.7	23.0	25.4	25.3	30.0	32.5	32.7
Judges	0.0	0.4	1.1	1.0	0.0	0.0	2.2	4.4	5.9	7.6
Wildlife	1.1	1.2	0.8	0.9	1.5	2.0	2.1	2.6	2.9	3.1
<b>Total</b>	<b>\$670.7</b>	<b>\$716.7</b>	<b>\$742.1</b>	<b>\$874.8</b>	<b>\$990.6</b>	<b>\$956.4</b>	<b>\$1,198.2</b>	<b>\$1,085.9</b>	<b>\$1,197.5</b>	<b>\$1,245.6</b>

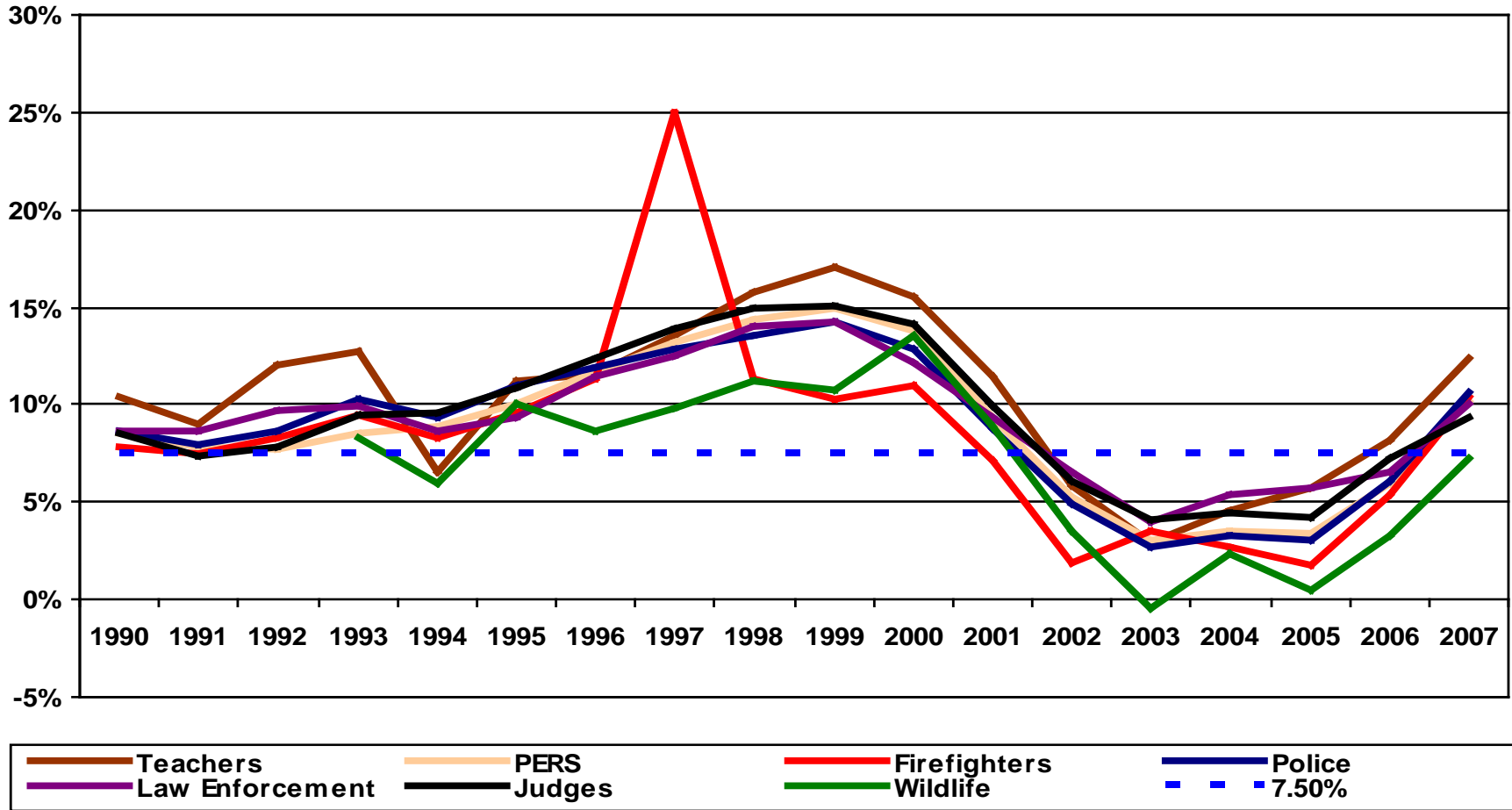
## Actual Employer Contribution

Plan Year Beginning	7/1/1998	7/1/1999	7/1/2000	7/1/2001	7/1/2002	7/1/2003	7/1/2004	7/1/2005	7/1/2006	7/1/2007
Teachers	\$244.4	\$275.9	\$328.2	\$364.9	\$362.0	\$375.4	\$405.8	\$459.5	\$535.9	TBD
OPERS	149.2	125.9	131.1	139.6	137.5	133.5	139.8	171.3	197.8	TBD
Firefighters	59.0	61.6	65.7	68.8	72.6	22.8	82.2	82.3	117.5	TBD
Police	36.2	37.7	40.0	42.2	44.2	23.9	48.7	50.0	56.4	TBD
Law Enforcement	18.0	19.6	19.4	20.4	21.1	13.4	21.4	22.0	24.4	TBD
Judges	0.0	2.9	1.9	0.5	--	--	0.5	0.8	1.2	TBD
Wildlife	1.2	1.2	0.8	0.9	1.2	1.2	2.5	2.5	3.0	TBD

Source: 1999 and earlier: R.V. Kuhns & Associates,  
2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company

# Investment Return – Actuarial Value

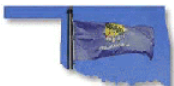
## Annual Rates of Return



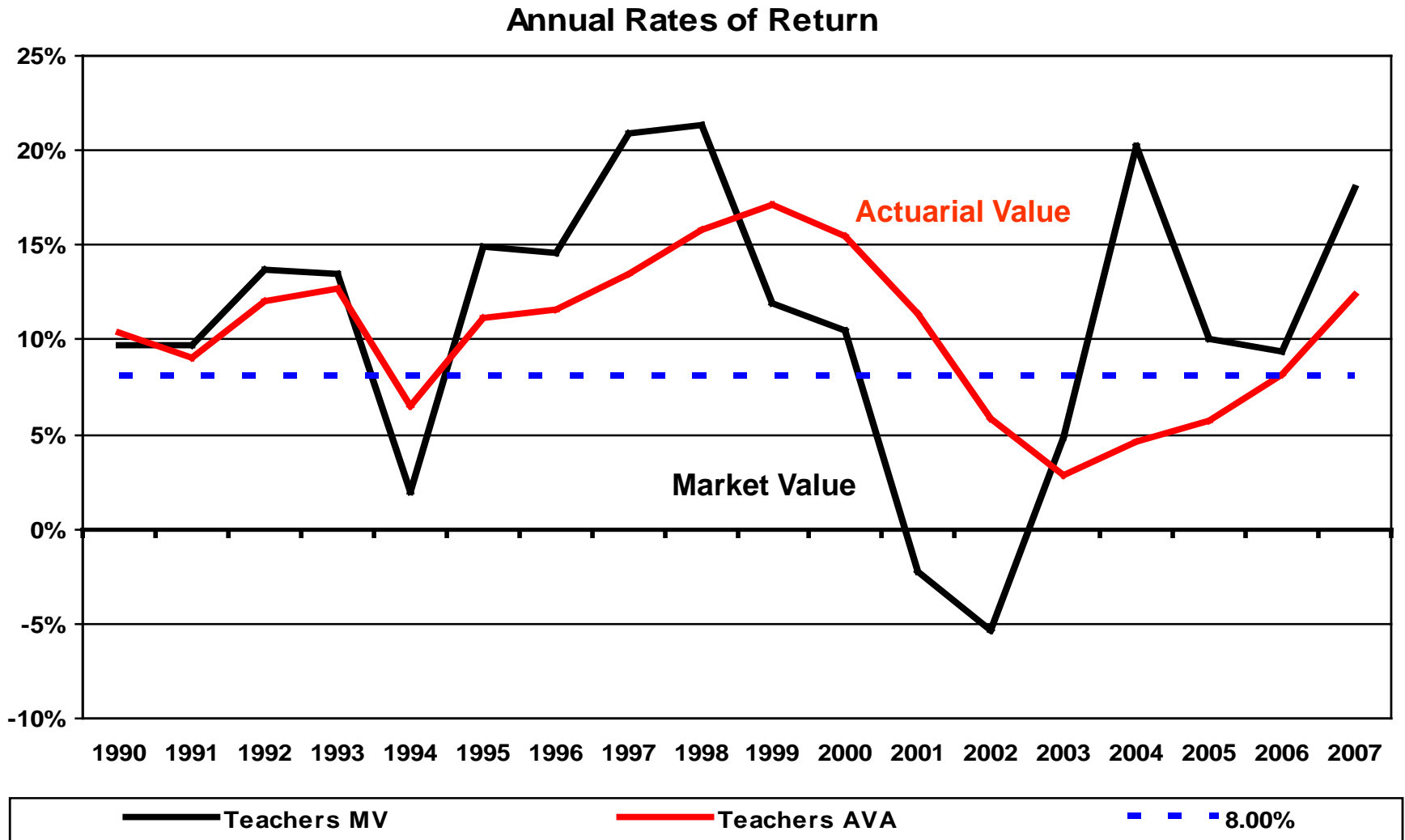
Source: 1999 and earlier: R.V. Kuhns & Associates,  
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# Investment Return – Market Value Volatility



Source: 1999 and earlier: R.V. Kuhns & Associates,  
2000 and later: Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company



# Retirement System Investment Return Assumptions

- Based on July 1, 2007 Actuarial Valuation Reports from Actuaries<sup>1</sup>
- The assumed investment return assumption ranges from 7.25% to 8.0%
- Public Fund assumed investment return median is 8.0%<sup>2</sup>
- Distribution of investment return assumptions for surveyed funds below<sup>2</sup>

## Actuarial Earnings Rate of Return on Plan Assets

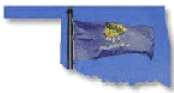
Total Corporate and Public Funds (878) (836) (826)

	Base		Mean			Under 7.0%	7.0- 7.4%	7.5- 7.9%	8.0- 8.5%	8.6- 9.1%	9.2- 9.7%	9.8- 10.5%	Over 10.5%	No Answer/ Uncertain
	2005	2006	2004	2005	2006									
<b>Corporate Funds (ex Unions)</b>	(580)	(578)	8.3%	8.3%	8.2%	2%	7%	3%	41%	17%	1%	*%	0%	29%
Over \$5 billion	(82)	(92)	8.5	8.4	8.3	2	5	4	45	25	1	0	0	17
\$1-5 billion	(237)	(229)	8.3	8.3	8.1	2	10	3	41	20	*	0	0	24
\$501 million-\$1 billion	(145)	(147)	8.4	8.3	8.2	0	5	5	39	15	1	1	0	33
\$500 million and under	(116)	(110)	8.2	8.2	8.0	2	5	1	43	9	0	0	0	41
<b>Public Funds</b>	(225)	(219)	8.1%	8.1%	8.0%	*%	9%	10%	49%	5%	*%	1%	1%	24%
State	(83)	(81)	7.9	8.0	8.0	1	10	7	47	5	1	0	1	27
Municipal	(135)	(131)	8.3	8.2	8.1	0	8	11	52	5	0	2	2	21
Over \$5 billion	(68)	(69)	7.9	7.9	8.0	0	9	10	46	4	1	0	1	28
\$1-5 billion	(76)	(71)	8.1	8.1	8.0	1	10	8	51	8	0	0	1	20
\$501 million-\$1 billion	(35)	(41)	8.3	8.2	8.0	0	7	17	44	5	0	2	0	24
\$500 million and under	(46)	(38)	8.4	8.3	8.1	0	8	5	58	0	0	3	3	24
<b>Union Funds</b>	(31)	(29)	8.1%	7.9%	7.7%	0%	28%	10%	34%	7%	0%	0%	0%	21%
<b>Total Funds</b>	(836)	(826)	8.3%	8.2%	8.1%	1%	8%	5%	43%	14%	1%	*%	*%	27%

Note: Means exclude "None."

1. Buck Consultants, Milliman Consultants and Actuaries, and Gabriel, Roeder, Smith & Company

2. Greenwich Associates survey, 2007



# Summary of Major Plan Changes

System	Benefit Provisions	Assumption & Methods	Funding	Legislative
<b>Teachers'</b>	Yes	None	None	Yes
	SB 357 - Phased in increase in Employer Contribution Rates by 2011: 9.50% for EESIP employers, 8.55% for Non-EESIP employers			SB 357 - Phased in increase in Employer Contribution Rates by 2011: 9.50% for EESIP employers, 8.55% for Non-EESIP employers
<b>OPERS</b>	None	None	None	None
<b>Firefighters</b>	Yes	None	None	Yes
	SB 859 - Modified definition of "volunteer firefighter" and circumstances regarding death benefits			SB 674 - Compliance with payment of qualified health insurance premiums HB 2070 - Oklahoma Pension Legislation Actuarial Analysis Act



# Summary of Major Plan Changes (continued)

System	Benefit Provisions	Assumption & Methods	Funding	Legislative
<b>Police</b>	None	None	None	Yes SB 695 - Compliance with payment of qualified health insurance premiums SB 1112 - Oklahoma Pension Legislation Actuarial Analysis Act HB 2070 - Oklahoma Pension Legislation Actuarial Analysis Act
<b>Law Enforcement</b>	None	Yes Experience study resulted in changes to retirement, disability, withdrawal, salary increases, inflation, and COLA assumptions	None	Yes SB 695 - Compliance with payment of qualified health insurance premiums HB 2070 - Oklahoma Pension Legislation Actuarial Analysis Act
<b>Justices and Judges</b>	None	None	None	None
<b>Wildlife</b>	None	None	None	None



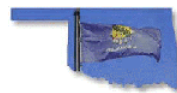
# Submission of Information to State Pension Commission

- During the 2002 legislative session, legislation was adopted that requires information be submitted to the State Pension Commission by the following Retirement Boards:
  - Teachers' Retirement System
  - OPERS Retirement System
  - Firefighters Retirement System
  - Police Pension and Retirement System
  - Law Enforcement Retirement System
  - Retirement System for Justices and Judges
- A valuation was to be performed, for informational purposes only, using a prescribed set of assumptions (70 O.S. 2001, Section 17-106.1, Section H)
  - Interest rate of 7.5%
  - COLA assumption of 2%
  - Mortality table of RP 2000
  - Set amortization period of 30 years (level dollar)



## Teachers' Retirement System

- Required information was provided to the Board by Gabriel, Roeder, Smith & Company
  - AAL = \$18.5 billion (vs. \$16.0 billion)
  - UAAL = \$10.1 billion (vs. \$7.6 billion)
  - Required State contribution = \$719 million (vs. contributions received in prior year of \$751 million)
- Valuation assumptions that differ from those prescribed are:
  - Interest rate of 8.0%
  - COLA assumption of 1%
  - Mortality table: 1994 tables
  - Floating amortization period (21.6 years as of 2007)



## OPERS Retirement System

- Required information was provided to the Board by Milliman Consultants and Actuaries
  - AAL = \$8.5 billion (vs. \$8.4 billion)
  - UAAL = \$2.4 billion (vs. \$2.3 billion)
  - Required State contribution = \$350.9 million (vs. contributions received in prior year of \$197.8 million)
- Valuation assumptions that differ from those prescribed are:
  - Amortization period of 40 years from 1987 (20 years remaining)



## Firefighters Retirement System

- Required information was provided to the Board by Buck Consultants
  - AAL = \$2.7 billion (vs. \$2.8 billion)
  - UAAL = \$1.0 billion (vs. \$1.1 billion)
  - Required State contribution = \$109.4 million (vs. contributions received in prior year of \$91.4 million)
- Valuation assumptions that differ from those prescribed are:
  - Mortality table: 1994 tables
  - Amortization period of 30 years from 2003





## Police Pension and Retirement System

- Required information was provided to the Board by Buck Consultants
  - AAL = \$2.0 billion (vs. \$2.0 billion)
  - UAAL = \$415 million (vs. \$408 million)
  - Required State contribution = \$51.5 million (vs. contributions received in prior year of \$28.1 million)
- Valuation assumptions that differ from those prescribed are:
  - COLA assumption for some retirees is 33% to 50% of assumed increase in base pay, with a minimum of 2% benefit increase



# Submission of Information to State Pension Commission

## Law Enforcement Retirement System

- Required information was provided to the Board by Buck Consultants
  - AAL = \$751 million (vs. \$841 million)
  - UAAL = \$54 million (vs. \$143 million)
  - Required State contribution = \$11.1 million (vs. contributions received in prior year of \$18.1 million)
- Valuation assumptions that differ from those prescribed are:
  - COLA assumption of 4% every other year
  - Amortization period of 20 years from 2001



## Retirement System for Justices and Judges

- Required information was provided to the Board by Milliman Consultants and Actuaries
  - AAL = \$224 million (vs. \$227 million)
  - UAAL = -\$0.6 million (vs. \$2.5 million)
  - Required State contribution = \$7.3 million (vs. contributions received in prior year of \$1.2 million)
- Valuation assumptions that differ from those prescribed are:
  - Interest rate of 7.25%
  - Amortization period of 40 years from 1987 (20 years remaining)



# Evolving Pension Landscape

- Almost all US pension plans have an asset/liability duration mismatch
  - Plan benefit payments extend much farther than fixed income maturities, and thus have longer duration (interest rate sensitivity)
  - Gains and losses are smoothed and/or amortized
- Shift in pension mindset – more so for corporate plans, but public plans will eventually follow
  - Corporate plan asset allocations are changing, based on new PPA laws
  - New liability-driven investment products aim to protect liabilities without taking a majority of assets
- Market in turmoil
  - Some “safe” investments have had significantly poor returns
  - Bond rating agencies have been criticized recently, may result in increased scrutiny of ratings of state pension plans



# Rules Changes – Corporate Plans

- **Funding: Pension Protection Act**
  - Most changes effective January 1, 2008
  - Yield curve rates used to discount liabilities - no more expected return assumption
  - 100% funding target (vs. 90%)
  - Less smoothing and amortization allowed
  - More penalties and faster funding for underfunded plans
- **Accounting: FASB 158**
  - Unfunded PBO now on the balance sheet, under Accumulated Other Comprehensive Income
  - Income statement changes under review
  - International convergence towards UK FRS17 standard or IAS – mark to market
- **What corporate plans are doing**
  - Plans freezing or closed to new entrants
  - Broad reduction in equity exposure
  - Increased allocation to global equities and bonds, and to alternative investments
  - Increased allocation to longer duration to closer match liabilities